Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_

**Notes Questions for the Unit 12, Part 2 Notes: Biotechnology A**

Ms. Ottolini, AP Biology

1. What is the purpose of polymerase chain reaction (PCR)?
2. What are the advantages of using PCR vs. gene cloning inside a bacterial plasmid?
3. What are restriction fragment length polymorphisms (RFLPs) and how can they be studied using gel electrophoresis?
4. Which of the following sequences in double-stranded DNA is most likely to be recognized as a cutting site for a restriction enzyme? Explain your answer.
5. A A C G

T T G C

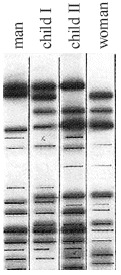
1. C C C C

G G G G

1. A G G A

T C C T

1. A T A T

T A T A

1. A restriction fragment analysis was carried out on DNA samples taken from members of a family due to questionable paternity of one of the family’s children. The results of the gel generated for analysis are shown to the right.

Which of the following statements is supported by the data? Explain your answer.

1. Both children are related to both parents.
2. Child I is related to the man but child II is not.
3. Both children are unrelated to either of the parents.
4. Child II is related to the man but child I is not.
5. For the DNA segment that is cut at restriction sites I and II shown on the image below, draw where fragments A, B, and C will be located on a gel after electrophoresis. How do you know where each fragment will “end up”?



**Gel:**

**Positive End**

**Negative End (Well End)**